

REMARKS

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority under 35 U.S.C. § 119(a)-(d), and for confirming that the certified copy of the priority document has been received at the Patent Office in U.S. Application No.: 09/917,217.

Information Disclosure Statement:

Applicant thanks the Examiner for initialing and returning Forms PTO/SB/08 A & B filed on August 11 and 27, 2004, thus indicating that all of the references listed thereon have been considered.

Drawings:

Applicant thanks the Examiner for indicating that the drawings filed on March 12, 2004 have been approved.

Election/Restriction:

Applicant thanks the Examiner for acknowledging Applicant's election, without traverse, of Group I, including claims 1-6 and 9-15, and Species I.

Specification:

To address the Examiner's concerns regarding the specification, Applicant has amended the specification to reference the patent number of the parent application.

Further, Applicant has submitted herewith a replacement Abstract to address the Examiner's concerns. Applicant hereby requests the Examiner withdraw the objection to the specification.

Claim Objections:

Applicant has amended claims 1 and 5 as shown in the previous section and submits that these amendments adequately address the Examiner's concerns. Thus, Applicant hereby requests the Examiner reconsider and withdraw the Examiner's objection to the claims.

Further, Applicant notes that the above referenced claim amendments have been made to merely clarify the claimed invention and are not intended to narrow the original scope or spirit of the claims in any way.

Claim Rejections:

Claims 1, 4, 5 and 10-12 are all of the claims that have been examined in the present application, and currently all of the claims stand rejected.

35 U.S.C. § 102(b) Rejection - Claims 1 and 5:

Claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Reference No. WO 98/09139 to Anderson. In view of the following discussion, Applicant respectfully traverses the above rejection.

As set forth in each of claims 1 and 5, the present invention contains first and second vibrating components that vibrate relative to the containing space of the liquid. Each of the vibrating parts are exposed to the containing space through an opening formed in a wall part which defines the containing space. Additionally, the openings determine an area of the respective vibrating parts. *See* claims 1 and 5.

Further, in the present invention, the respective piezoelectric devices used to drive the vibrating parts can generate an electromotive force signal based on a residual vibration of the vibrating parts depending on a liquid consumption condition of the liquid. *See* claims 1 and 5.

Anderson discloses a system where a number of cantilevered piezoelectric benders **50**, **52**, and **54** are used in an ink container **30** to monitor both the viscosity and level of ink **32** within the container **30**. An AC signal is supplied to the benders **50**, **52**, and **54**, which causes them to vibrate. When the elements **10** and **12** within the benders are bent or strained, they generate a voltage. *See* page 5 and Figure 1. As shown in Figure 3, an AC voltage meter **60** is positioned to receive an output signal from the lead **18** of the lower plate **12** of the benders **50**, **52**, and **54**. *See* page 8. The benders **50**, **52** and **54** can be located at any position within the tank **30**, including at the top of the ink level. *See* page 11. Further, although a cantilever type bender is primarily discussed, Anderson also teaches that “thin piezoelectric disks and double-plate ceramic elements” can be used. *See* page 5.

However, Anderson fails to disclose at least two aspects of the present invention. Specifically, Anderson fails to disclose a detector of liquid consumption condition having a vibrating part that can vibrate relatively to a containing space at least a portion of a vibrating part is exposed to the containing space through an opening formed in a wall part defining the containing space, and the opening determining an area of the vibrating part. Additionally, Anderson fails to disclose piezoelectric devices used to drive the vibrating parts that can generate an electromotive force signal based on a residual vibration of the vibrating parts depending on a liquid consumption condition of the liquid. *See* claims 1 and 5. With these distinguishing features, the detector of liquid consumption condition of the present invention, as set forth in claims 1 and 5, can detect the liquid consumption condition with very high accuracy. This can not be attained in Anderson.

In view of the foregoing, Applicant submits that Anderson fails to disclose, teach or suggest the present invention as set forth in each of claims 1 and 5. As such, Applicant submits that Andersen fails to anticipate the claimed invention, as required under the provisions of 35 U.S.C. § 102(b). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 102(b) Rejection of these claims.

35 U.S.C. § 103(a) Rejections - Claims 4, and 10-12:

The Examiner has also rejected claims 4 and 10-12 under 35 U.S.C. § 103(a) as being unpatentable over the Anderson reference in view of U.S. Patent No. 5,035,140 to Daniels et al. and U.S. Patent No. 4,329,875 to Nolting et al., respectively.

However, Applicant notes that neither the Daniels or Nolting references cure the deficient teachings of Anderson, as discussed above, with regard to claims 1 and 5. Therefore, Applicant submits that these claims are also allowable, at least by reason of their dependence, and hereby requests the Examiner withdraw the rejections of these claims.

Conclusion:

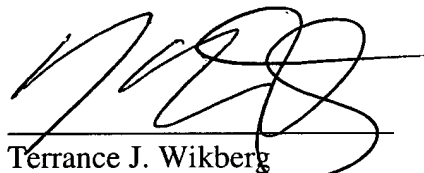
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. §1.111
Application Number 10/798,409

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Art Unit: 2856

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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